

## ABSTRACT

Membrane proteins that are background antigens were solubilized, and transgenic animals were produced using genes encoding these soluble proteins. Antibodies against the background antigen membrane proteins comprised in the immunogens were not found in these transgenic animals, and even when genes encoding soluble proteins were used, immunotolerance against the full-length membrane proteins could be induced. Moreover, by expressing the background antigen membrane proteins as soluble proteins inside the bodies of transgenic animals, unfavorable phenotypes that appear when the full-length membrane proteins are expressed could be avoided, and such animals were made widely available as immunized animals.